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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,999

09/07/2006

Masato Asai

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EXAMINER

MILLER, MICHAEL G

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

09/08/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,999	Applicant(s) ASAI, MASATO	
	Examiner MICHAEL G. MILLER	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8 and 10-21 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-6,8,10 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>JUL 09, AUG 09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

- 1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01 JUN 2009 has been entered.

Information Disclosure Statement

- 2) The information disclosure statement (IDS) submitted on 26 AUG 2009 was filed after the mailing date of the Final Rejection on 04 MAR 2009. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Amendment

- 3) Examiner notes the amendment filed 06 JUL 2009. The amendment introduces no new matter and is therefore accepted. As a result of the amendment Claims 1 and 21 are amended, Claims 7 and 9 are canceled, and Claims 11-20 stand withdrawn without traverse as of 02 JUN 2008.

Response to Arguments

- 4) Applicant's arguments filed 06 JUL 2009 have been fully considered but they are not persuasive.

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- 5) Applicant's first argument is that the methods used cannot be the same if the results are different and proceeds to highlight data points where the two layers have different refractive indices. Examiner acknowledges the point but, absent a teaching that the cited data points were formed by the same method, maintains the position that if the same materials are used in the same method, the same result must occur.
- 6) Applicant's second argument is that '438 does not talk about the low index factor of the application. Examiner points out that '438 was not required to teach this prior to the most recent amendment and points to Column 7 Lines 20-60 of '517, which teaches a silica sol coating with a refractive index of 1.22. In combination with '436, which teaches that ethanol (used in '517 and '436) and MEK (taught in '436) are known to both be used in forming the sols, Examiner will make the point that it would have been obvious to combine the teachings to obtain the required product.

Claim Rejections - 35 USC § 103

- 7) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
- 8) The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 9) Claims 1-6, 8, 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Floch et al (U.S. Patent 5,639,517, hereinafter '517) in view of Ota et al (U.S. Patent 5,925,438, hereinafter '438).
- 10) Claim 1 – '517 teaches a process for manufacturing an anti-reflection (AR) film comprising a film substrate and a low-refractive index layer having a refractive index of 1.10 to 1.29, comprising the steps of (Column 7 Lines 20-60):
 - a) Applying a coating solution comprising
 - i) Coated fine particles composed of inorganic fine particles composed substantially made of an oxide of silicon and an organic polymer for covering the surfaces of the inorganic fine particles (the organic polymer will be derived from the condensation product of the TEOS and is essentially polyethylene),
 - ii) A binder resin (the polyethylene derived from the condensation product of the TEOS will also bind the particles together) and
 - iii) An organic solvent which is miscible with water to at least one side of the film substrate; and
 - b) Drying the coating layer to form the low-refractive index layer having voids,
 - c) Wherein the organic polymer for covering the surfaces of the inorganic fine particles and the binder resin are selected from alkyl-based polymers (polyethylene), and

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- d) Wherein the content of the organic solvent in the coating solution is at least 70% based on the weight of the coating solution and the solid content of the coating solution is 0.5 – 10%.
- e) '517 does not teach an organic solvent with a boiling point higher than 100 degrees Celsius. '438 teaches a method of forming AR films using silica sols described at Column 5 Lines 9-45. The base silicon component is chemically similar to TEOS (the only difference being one CH₂O group), and the listed solvents include ethanol and, for example, MEK.
- f) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have combined the teachings of '517 and '438, as both methods want to form silica sols using related materials and '438 teaches that ethanol and MEK are both known solvents for producing such.

11) Claim 2 – As discussed above, TEOS is used in '517 and MEK from '438 is miscible in water.

12) Claim 3 – '438 teaches crosslinking agents for promoting film formation at Column 5 Lines 62-67.

13) Claim 4 – as discussed above, '438 teaches MEK.

14) Claim 5 – '438 teaches the use of fluorinated alkoxysilanes at Column 6 Lines 14-42, teaching using the fluorine to adjust the refractive index.

15) Claim 6 – Particle sizing is discussed in '438 at Column 6 Lines 9-13 (30-60nm granules) and Column 12 Lines 21-26 (coating of 100nm maximum thickness); if the

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particles start out between 30-60nm and the layer tops out at 100nm, the average particle diameter must be between 30 and 100 nm.

16) Claim 8 – as discussed above, '517 teaches hydrolysis of alkoxysilanes and also teaches that alkoxysilanes can be used to the same effect (Column 5 Line 66 – Column 6 Line 7).

17) Claim 10 - '438 teaches forming a hard coat layer on one side of a substrate and then applying a low-refractive index layer on the hard coat layer (Column 11 Line 49 - Column 12 Line 26).

18) Claim 21 – rejected as Claim 1 ('438 teaches the use of additives to form the low-refraction index layer, including polybisphenol S glycidyl ether at Column 8 Lines 23-35).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL G. MILLER whose telephone number is (571)270-1861. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael G. Miller/
Examiner, Art Unit 1792

/Michael Cleveland/
Supervisory Patent Examiner, Art Unit 1792